Preferences for health economics presentations among vaccine policymakers and researchers ☆

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ABSTRACT

Purpose: Measure the preferences of decision makers and researchers associated with the Advisory Committee on Immunization Practices (ACIP) regarding the recommended format for presenting health economics studies to the ACIP.
Methods: We conducted key informant interviews and an online survey of current ACIP work group members, and current and previous ACIP voting members, liaison representatives, and ex-officio members to understand preferences for health economics presentations. These preferences included the presentation of results and sensitivity analyses, the role of health economics studies in decision making, and strategies to improve guidelines for presenting health economics studies. Best-worst scaling was used to measure the relative value of seven attributes of health economics presentations in vaccine decision making.
Results: The best-worst scaling survey had a response rate of 51% (n = 93). Results showed that summary results were the most important attribute for decision making (mean importance score: 0.69) and intermediate outcomes and disaggregated results were least important (mean importance score: −0.71). Respondents without previous health economics experience assigned sensitivity analysis lower importance and relationship of the results to other studies higher importance than the experienced group (sensitivity analysis scores: −0.15 vs. 0.15 respectively; relationship of the results: 0.13 vs. −0.12 respectively). Key informant interviews identified areas for improvement to include additional information on the quality of the analysis and increased role for liaisons familiar with health economics.
Conclusion: Additional specificity in health economics presentations could allow for more effective presentations of evidence for vaccine decision making.

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1. Introduction

Since 1964, the United States Advisory Committee on Immunization Practices (ACIP) has been making policy recommendations regarding vaccines for recommended age of vaccination, number of vaccine doses, time between doses, precautions and contraindications with each vaccine, and target populations [1–3]. These policy recommendations are used by the Centers for Disease Control and Prevention (CDC) to set the U.S. childhood and adult immunization schedules [1–4]. Under provisions of the Affordable Care Act (ACA), starting in September 2009, vaccines that are recommended by the ACIP and adopted by the CDC must be covered with no copayment by all health plans conforming to the ACA requirements [1]. ACIP recommendations also guide the purchase, delivery, and

administration of pediatric vaccines in the Vaccines for Children Program [1].

In making vaccine policy recommendations, the ACIP considers information on prevalence of the disease and disease severity; safety; efficacy and effectiveness; cost-effectiveness; and feasibility of different vaccines and vaccine schedules [1,5]. The presentation and discussion of cost-effectiveness studies, or more broadly health economics studies, in the ACIP review process has evolved over the past several decades.

In order to improve the standardization and comparability of health economics presentations to the ACIP, the CDC developed guidelines and a presentation template for health economics studies in 2007 [6–8]. The purpose of the current study is to understand preferences regarding content and approach for health economics studies presented to the ACIP in order to identify ways to enhance the value and interpretability of these presentations.

2. Methods

The ACIP consists of 15 voting members, an executive secretary, eight ex-officio members from government agencies other than the CDC, and liaison representatives from 30 health-related professional organizations and foundations. There are also ACIP work groups that include researchers who meet regularly under the direction of CDC Leads to review relevant vaccine information and prepare draft policy recommendations for the full ACIP [2]. A quantitative online survey was developed to understand preferences among those involved with the ACIP. This study was reviewed and given exempt status under the Medical Institutional Review Board at the University of Michigan (IRB# HUM00087889). CDC's determination of this study was non-engaged.

2.1. Survey sample

The survey sample included all current ACIP work group members and current and previous ACIP voting members, CDC Leads, liaison representatives, and ex-officio members dating back to 2007 (n = 181).

2.2. Survey development and design

We conducted 13 key informant interviews to understand qualitatively the context and any potential issues around health economics presentations to the ACIP and to guide the development of the quantitative survey (see Supplemental Materials for more details).

Supplementary data associated with this article can be found, in the online version, at https://doi.org/10.1016/j.vaccine.2018.08.049.

To evaluate which aspects of health economics presentations were most and least valuable to respondents, we used an object case best-worst scaling approach for the quantitative survey [9,10]. We defined seven primary attributes of health economics presentations (Table 1) and refined these using results from the key informant interviews. A balanced incomplete block design was used to create seven blocks of questions. Each question asked participants to compare three of the seven attributes and decide which was the most valuable and which was the least valuable to them for decision making.

Additional questions assessed more detailed preferences for the presentation of results (text descriptions, figures, or tables) and sensitivity analyses (credible intervals or bar charts with error bars, tornado diagrams, cost-effectiveness plane scatter-plots, and cost-effectiveness acceptability curve plots). We also asked questions on the following topics both in key informant interviews and the online survey: appropriateness of presenting health economics studies, influence of health economics studies, aspects requiring improvement, barriers to interpretation, ways to improve collaboration between the work groups and voting group, value of a quality measure, and use of supporting documentation for the presentations.

The survey was pre-tested with one ACIP work group and then fielded to the full sample in August and September 2015. The final survey instrument is provided in the Supplemental Materials.

2.3. Analysis plan

We analyzed the best-worst scaling questions by calculating mean importance scores, also known as sample-level best-minus-worst choice frequencies [11]. These were calculated as the percentage of times the attribute was chosen as the most valuable for decision making minus the percentage of times the attribute was chosen as least valuable for decision making. Stratified subgroup analyses were also conducted by calculating the importance scores among previous or current voting members, those without previous involvement in a health economics study, and those with previous involvement in a health economics study. We also conducted a regression analysis for each group using sequential best-worst conditional logit models [11]. These models allowed us to identify the statistical significance in how much one attribute was preferred over another. To determine whether experience in health economics studies had a statistically significant impact on the preference for each attribute, we also tested a

Table 1
Attributes of health economics studies used in best-worst scaling questions.

Attributes of health economics studies	Definitions provided in the survey
1. Model overview and structural assumptions	The model and structural assumptions include a description of: (1) the health states included, (2) the progression of illness recovery and immunity, (3) how individuals enter, exit, or remain in the model, (4) how individuals in the model interact
2. Description of cost and health valuation inputs	Costs may include direct medical, direct non-medical, and changes in productivity (i.e., time costs). Health utility valuations are assigned to each health state. Utilities are assigned on a scale from 0 (representing dead) and 1 (representing perfect health) and are used to determine the quality adjusted life years (QALYs) gained by the intervention
3. Intermediate outcomes and disaggregated results	Intermediate outcomes are those that precede the key outcomes. Disaggregated results show the separate contributions of costs and the separate components of QALYs by source or health state
4. Summary results or cost-effectiveness ratio	These are the results that answer the study question, typically the ratio of incremental costs divided by the incremental gain in QALYs
5. Sensitivity analysis results and methods	Sensitivity analyses explore how the results change when model inputs are varied across a predefined range
6. Discussion of limitations to the analysis	Study limitations describe the potential biases of the model due to missing evidence or characteristics of the studies used to develop model inputs
7. Relationship of the results to other relevant studies	The results and sensitivity analysis of the study are compared to other studies that examine the same vaccine or alternative interventions for the same condition